REMARKS

By the above amendments, non-elected claims 4-9 are canceled and the specification and claims 1 and 2 are amended to place this application in condition for allowance. Currently, claims 1-3 are before the Examiner for consideration on their merits.

First, it is noted on one of the returned PTO-1449's, i.e., the one stamped December 8, 2004, that the cited US patent 4,798,632 to Yonezawa et al. was not acknowledged as being considered by the Examiner. It is respectfully requested that the PTO-1449 be returned in the next Office Action with the proper acknowledgement of this patent.

Second, the informalities noted in the specification have been corrected, and the objection made in this regard should be withdrawn.

Third, claims 1 and 2 are revised to clarify that the inventive nickel alloy with its low angle boundary has excellent resistance to intergranular stress corrosion cracking. Since this is one object of the invention, support is clearly provided in the application for this amendment.

Fourth, withdrawal of the previous rejection and the new rejection of claims 1-3 under 35 U.S.C. § 103(a) based on United States Patent No. 4,400,211 to Kudo et al. (Kudo) when taken in view of Introduction to Metallurgy (Newton) is acknowledged.

Applicant respectfully traverses the new rejection on the grounds that the Examiner has either failed to establish a *prima facie* case of obviousness or that any such case is effectively rebutted by the comparative evidence set forth in the specification.

In review, the Examiner relies on Kudo to contend that the claimed alloy in terms of composition is obvious since it is suggested by Kudo. The Examiner then admits that Kudo does not teach the claim limitation regarding the low angle boundary of not less than 4%. In response to this deficiency, the Examiner makes two contentions to support the conclusion of obviousness. The first is that Kudo recognizes that cold working can be employed as part of

the processing of the disclosed alloy. The second conclusion is that Newton teaches that cold working is a result effective variable. The Examiner concludes that one of skill in the art could optimize the cold working of Kudo given Newton, and this optimization would result in the claimed low angle boundary limitation.

This logic is flawed for a number of reasons which are set out below.

First, the processing of Kudo and the processing of the invention, which results in the claimed low angle boundary are not the same. The Examiner's attention is drawn to Tables 2 and 4 on pages 21 and 23 of the specification. In Table 2, the alloys are subjected to both cold rolling and solution treatment in a first manufacturing method, see also page 16, lines 10-16.

In a second manufacturing method and Table 4, the cold working level is slightly different than the cold working level of the first manufacturing method, see also page 16, line 26 to page 17, lines 1-16. However, in the second manufacturing method, the cold working is related to the final solution treatment via the equation that relates the two, see page 17, lines 6 and 7.

In both manufacturing methods, controlling the processing using either the first or second manufacturing method results in improved corrosion resistance, see Figures 3 and 4, page 20, lines 14-22, and page 23, the paragraph below Table 4.

More specifically, the inventors have discovered that by paying attention to the low angle boundary, excellent intergranular stress corrosion resistance can be obtained. This crystal structure is attained by applying a predetermined rate of cold working followed by a solution heat treatment, see Figure 5 and Table 2, as the first manufacturing method, or cold working and solution heat treating in while satisfying the aforementioned equation, see Figure 7 and Table 4. This processing produces a superior nickel alloy as compared to those of the prior art.

Turning now to Kudo, Applicant does not dispute the fact that Kudo teaches cold working. However, the object of Kudo is to incorporate work-hardening by cold working to improve the mechanical strength of casing or tubing made of alloy for use in deep oil wells, see col. 2, lines 20-24. Moreover, Kudo teaches cold working after solution heat treatment, see col. 4, lines 43-55. There is no disclosure that the solution heat treatment should be applied after the specific degree of cold working is completed. Thus, it is contended that while Kudo may teach an alloy that overlaps the ranges of that claimed, there is no basis for the Examiner to conclude that this similarity in alloy composition means that the limitation of low angle boundary is found in Kudo, even if the cold working were varied within Kudo's disclosed limits.

Kudo is also different from the invention in that cold working is recognized as seriously decreasing the resistance to stress corrosion cracking, see col. 2, lines 22-23. Kudo's way of rectifying this problem is through compositional control, wherein nickel on the order of 30-60% and chromium on the order of 15-35% are present to improve the resistance to stress corrosion cracking, see col. 2, lines 42-54. What this means is that Kudo and the invention go about solving the problem of increasing the resistance to stress corrosion cracking in different ways.

The teachings of Newton are really cumulative to Kudo, and do not add anything of significance with respect to the issue of patentability for this application. Newton merely stands for the proposition that cold working will cause a metal to become harder or more brittle, and Applicant does not take issue this teaching. However, the teachings of Newton, even if used in conjunction with Kudo, do not produce the invention. The reason for this is that the processing of the invention that attains the low angle boundary of more than 4% is fundamentally different than that employed by Kudo, with or without Newton. Even if one were to optimize the cold working level of Kudo, the end result is not necessarily the alloy of claim 1 with the claimed low angle boundary. This is because Kudo does not both employ

cold working and a subsequent solution heat treatment as is detailed in Tables 2 and 4 and the descriptions thereof.

The conclusion in the rejection that the optimization of the cold working would result in an alloy meeting the limitations of claim 1 is just not supported by the teachings of the applied prior art. As pointed out above, the invention is more than the mere optimization of the process of Kudo; it is a new and novel approach to improving the intergranular stress corrosion cracking resistance of nickel alloys.

The comparative evidence in the specification further substantiates the patentability of claims 1 and 2. In Table 2, it is clearly demonstrated that the same alloy does not produce the required low angle boundary, e.g., compare Processes 5 and 14. Each of these processes use the same alloy with the same first process conditions but different final process conditions.

Table 4 shows similar results. Process 18 and 30 use the same alloy and same first process conditions. However, the final process conditions are different as is the results of the equation, this difference resulting in Process 30 producing an alloy of inferior performance from a stress corrosion cracking standpoint.

The comparative evidence of Tables 2 and 4 shows that control of the low angle boundary is critical in achieving improved resistance to stress corrosion cracking, and this result is both surprising and unexpected. Kudo is totally silent on any effects on stress corrosion cracking via control of the low angle boundary. Thus, even if the Examiner were to contend that Kudo and Newton did establish a *prima facie* case of obviousness, the results set forth in Tables 2 and 4 effectively rebut such a contention and clearly demonstrate that claims 1 and 2 are patentable over the applied prior art.

In summary, it is contended that Kudo and Newton fails to establish a *prima facie* case of obviousness against claims 1 and 2. In the alternative, any such allegation is effectively rebutted by the comparative evidence set forth in Tables 2 and 4. Claim 3 is patentable by reason of its dependency on claim 2.

Accordingly, the Examiner is requested to examine this application in light of this response and pass claims 1-3 onto issuance.

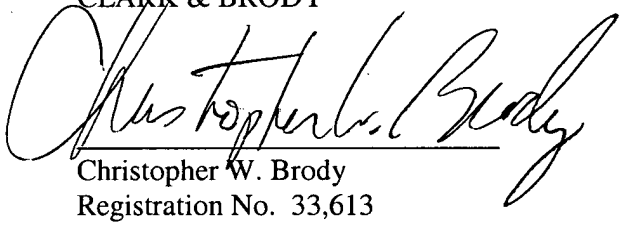
If the Examiner believes that an interview with Applicant's attorney would be helpful in expediting the allowance of this application, the Examiner is respectfully requested to telephone the undersigned at 202-835-1753.

The above constitutes a complete response to all issues raised in the Office Action dated December 7, 2005.

Again, reconsideration and allowance of this application is respectfully requested.

Applicant respectfully submits that there is no fee required for this submission, however, please charge any fee deficiency or credit any overpayment to Deposit Account No. 50-1088.

Respectfully submitted,
CLARK & BRODY



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